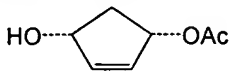
Remarks

The present invention is directed to processes for preparing enantiomerically enriched (1S,4R) 1-acetoxy-4-hydroxycyclopent-2-ene of Formula I:



Formula I,

with an enantiomeric purity of 95-99 %, which is useful as an intermediate in the synthesis of prostaglandins and prostanoids.

Claims 1-4 and 7 are pending in this application. Claims 5 and 6 are cancelled herein without prejudice or disclaimer. Applicant reserves the right to file divisional application(s) on any cancelled subject matter. Claims 1-4 are amended and claim 7 is added herein. Basis for these amendments and claims is found throughout the specification as originally filed. No new matter has been added.

Applicants respectfully requests reconsideration and withdrawal of the outstanding objections and rejections in light of the foregoing amendments and following remarks. For the reasons that follow, Applicants believe that all claims are now in condition for allowance.

Oath/Declaration

The present application claims priority to U.S. Provisional Application Serial No. 60/439,953, filed January 14, 2003. A new Declaration, which references the '953 provisional application in accordance with the section for provisional applications under 35 USC §119(e), was submitted to the USPTO on February 22, 2005.

Claim Objections

The Office Action has objected to the claims as allegedly not having the same denotation. As amended herein, the steps in the pending claims have the same denotation, i.e., a), b), c), etc., which renders this objection moot.

Claim Rejections - 35 USC §112

The Office Action has rejected claims 1-6 under 35 USC §112, second paragraph, as allegedly being indefinite. Applicant respectfully disagrees.

The Phrase "Relative to Pancreatin"

The Action has rejected claims 1 and 5 under 35 USC §112, second paragraph, as allegedly being indefinite for reciting the phrase "relative to pancreatin."

As amended herein, claim 5 is cancelled which renders the objection to this claim moot.

As amended herein, the third step in claim 1 describes "adjusting the water content of the mixture such that the water content is 5-7 % of the weight of pancreatin." This phrase clearly

means that the water content of the mixture is 5-7 % of the weight of pancreatin, not the weight of the mixture.

Units of Pressure

Claims 2 and 4 are rejected under 35 USC §112, second paragraph, as allegedly being indefinite for reciting the phrase "mm pressure."

As suggested by the Examiner and as amended herein, claims 2 and 4 recite "mm Hg pressure."

The Term "Preferably"

Claims 1-6 are rejected under USC §112, second paragraph, as allegedly being indefinite for reciting the term "preferably."

As amended herein, claims 5 and 6 are cancelled which renders the objection to this claim moot.

As amended herein, claims 1-4 do not recite the term "preferably." As amended, claims 1-4 are directed to processes wherein the reaction temperature is maintained between -40 °C to +40 °C, whereas newly added claim 7 is directed to process wherein the reaction temperature is maintained between 5 °C to +10 °C.

Claim Rejections - 35 USC §102

The Office Action has rejected claims 1 and 3 under 35 USC §102(b) as allegedly being anticipated by Theil *et al.* (Leibigs Ann. Chem., 1991). Applicant respectfully disagrees.

As amended herein, claims 1 and 3 distinguishes over Theil by claiming processes for preparing enantiomerically enriched (1S, 4R) 1-acetoxy-4-hydroxycyclopent-2-ene by adjusting the water content of the mixture (i.e., pancreatin, *cis*-1,4-dihydroxycyclopent-2-ene, vinyl acetate, triethylamine and tetrahydrofuran) or pancreatin, such that the water content is 5-7 % of the weight of pancreatin.

Theil does not disclose any processes for preparing enantiomerically enriched (1S, 4R) 1-acetoxy-4-hydroxycyclopent-2-ene by adjusting the water content of the reaction mixture or pancreatin, such that the water content is 5-7 % of the weight of pancreatin. Instead, this reference discloses processes for preparing (1S, 4R) 1-acetoxy-4-hydroxycyclopent-2-ene by stirring pancreatin, *cis*-1,4-dihydroxycyclopent-2-ene, vinyl acetate, triethylamine and tetrahydrofuran together, wherein the water content of the pancreatin was inadvertently determined to be 5.4 % (Karl Fischer titration). Nor does this reference disclose that adjusting the water content of the reaction mixture or pancreatin, such that the water content is 5-7 % of the weight of pancreatin, results in an enantiomerically enriched product, i.e., (1S, 4R) 1-acetoxy-4-hydroxycyclopent-2-ene with an enantiomeric purity of 95-99 %, as required by the claims. Thus, as amended herein, the claims are novel over Theil.

Claim Rejections - 35 USC §103

The Office Action has rejected claims 1 and 3 under 35 USC §103(a) as allegedly being obvious over Lapitzkaja *et al.* (German Patent 293 136), in view of Theil *et al.* Applicant respectfully disagrees.

As amended herein, claims 1 and 3 distinguishes over Lapitzkaja by claiming processes for preparing enantiomerically enriched (1S, 4R) 1-acetoxy-4-hydroxycyclopent-2-ene by adjusting the water content of the mixture (i.e., pancreatin, *cis*-1,4-dihydroxycyclopent-2-ene, vinyl acetate, triethylamine and tetrahydrofuran) or pancreatin, such that the water content is 5-7 % of the weight of pancreatin.

Lapitzkaja does not teach or suggest any processes for preparing enantiomerically enriched (1S, 4R) 1-acetoxy-4-hydroxycyclopent-2-ene by adjusting the water content of the reaction mixture or pancreatin, such that the water content is 5-7 % of the weight of pancreatin. Instead, this reference discloses processes for the production of (1R, 4S) 4-acyloxy-1-hydroxycyclopent-2-ene (i.e., (1S, 4R) 1-acetoxy-4-hydroxycyclopent-2-ene) by reacting *cis*-1,4-dihydroxycyclopent-2-ene, vinyl acetate, triethylamine and tetrahydrofuran with porcine pancreatic lipase in the form of prepared pancreatine, wherein the water content of the pancreatin was not determined. Theil does not cure the defects of Lapitzkaja because this reference does not teach or suggest that adjusting the water content of the reaction mixture or pancreatin, such that the water content is 5-7 % of the weight of pancreatin, results in an enantiomerically enriched product, i.e., (1S, 4R) 1-acetoxy-4-hydroxycyclopent-2-ene with an enantiomeric purity of 95-99 %, as required by the claims. Absent a teaching or suggestion in the prior art, one of skill in the art would not have been motivated to adjust the water content of the reaction mixture or pancreatin, such that the water content is 5-7 % of the weight of pancreatin, to provide an enantiomerically enriched product, as required by the claims. Thus, as amended herein, the claims are not obvious over Lapitzkaja.

Conclusion

Applicants believe that all claims are now in condition for allowance. Should there be any issues that have not been addressed to the Examiner's satisfaction, Applicants invite the Examiner to contact the undersigned attorney.

If any fees are due in connection with this response, including the fee for any required extension of time (for which Applicants hereby petition), please charge such fees to Deposit Account No. 500329.

Respectfully submitted,

Date: March 14, 2005

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